IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

1. (currently amended)A data transfer method in a computer system, comprising:

plural computers;

plural memory devices, each being separate from the others;

a relay device which connects the computers and the memory devices; and

a management device which manages the computers, the memory devices, and the relay device,

wherein the management device sets virtual memory areas of the memory devices for the plural computers and holds first information on contents of the setting ~~as first information~~for each virtual memory area,

wherein the relay device holds second information ~~which is~~for each virtual memory area, said second information for each virtual memory area being created based upon the first information for the virtual memory area,

wherein each second information of a corresponding virtual memory area indicates whether data stored in the corresponding virtual memory area can be transferred from a memory device containing said virtual memory area to another memory device,

wherein each of the virtual memory areas ~~correspond~~corresponds to memory areas contained in ~~the respective~~one memory ~~devices~~device or

corresponds to a memory area formed by combining memory areas contained in plural different ~~the~~ memory devices, and

wherein the relay device selects ~~one~~ a virtual memory area based on the second information, determines whether the selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in plural different memory devices, and if the selected virtual memory area is formed by combining memory areas in plural different memory devices and if an unused memory area exists in the memory device containing the selected ~~one~~ virtual memory area, performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected ~~one~~ virtual memory area to the unused memory area of the memory device containing the selected ~~one~~ virtual memory area.

2. (previously presented) A data transfer method according to claim 1, wherein the relay device refers to the second information to perform transfer of data among the plural memory devices, if the memory area of one of the different memory devices other than the memory device containing the selected one virtual memory area has smaller capacity relative to the capacity of the unused memory area of the memory device containing the selected one virtual memory area.

3. (original) A data transfer method according to claim 2, wherein the second information is updated based upon the first information.

4. (previously presented) A data transfer method according to claim 2, wherein, in transferring data among the plural memory devices, third information indicating whether data transfer is incomplete or data has been transferred for each unit of data transfer is set, and the indication that the data transfer is incomplete is changed to an indication that the data has been transferred each time the unit of data transfer is transferred to update a progress state of data transfer.

5. (original) A data transfer method according to claim 3, wherein the second information has a flag indicating a state of whether or not data transfer is in progress for the respective virtual memory areas, and

when the computers access the virtual memory areas, if the flag of the virtual memory area corresponding to the second information indicates data transfer in progress the relay device judges which of a data transfer source and a data transfer destination should be accessed according to the third information and does not interrupt data access from the computers to the virtual memory areas during data transfer.

6. (original) A data transfer method according to claim 5, wherein the relay device directly copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to a memory area of the data transfer destination.

7. (original) A data transfer method according to claim 5, wherein the relay device once copies data of a memory area, which is a part

of the virtual memory areas and for which data transfer is performed, to a memory area in the memory device prepared in advance for data transfer and, then, indirectly copies the data to a memory area of the data transfer destination.

8. (original) A data transfer method according to claim 5, wherein the relay device once copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to an unused memory area of the memory areas of the plural memory devices and, then, indirectly copies the data to a memory area of the data transfer destination.

9. (original) A data transfer method according to claim 5, wherein the relay device keeps data, which is a part of the virtual memory areas at the time of data transfer, in the virtual memory areas before data transfer temporarily or for a designated period even after the data transfer.

10. (original) A data transfer method according to claim 5, wherein the relay device once copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to a memory area in the relay device prepared in advance for data transfer and, then, indirectly copies the data to a memory area of the data transfer destination.

11. (original) A data transfer method according to claim 1, wherein, in the case in which the relay device in the computer system is constituted redundantly, the management device distributes the first information to all the relay devices and uses the first information as an information source of the second information.

12. (previously presented) A data transfer method according to claim 1, wherein, if components inside the relay device in the computer system are constituted redundantly and components having the second information are constituted redundantly, the second information is always synchronized among the components constituted redundantly, whereby, if one of the components constituted redundantly fails, the relay device uses the second information of the other components constituted redundantly.

13. (currently amended)A computer system comprising:

plural computers;

plural memory devices, each being separate from the others;

a relay device which connects the computers and the memory devices with each other; and

a management device which manages the computers, the memory devices, and the relay device,

wherein the management device sets virtual memory areas of the memory devices for the plural computers and holds first information on contents of the setting ~~as first information~~for each virtual memory area,

wherein the relay device holds second information ~~which is~~for each virtual memory area, said second information for each virtual memory area being created based upon the first information for the virtual memory area,

wherein each second information of a corresponding virtual memory area indicates whether data stored in the corresponding virtual memory area can be transferred from a memory device containing said virtual memory area to another memory device,

wherein each of the virtual memory areas ~~correspond~~ corresponds to memory areas contained in ~~the respective~~one memory ~~devices~~ device or corresponds to a memory area formed by combining memory areas contained in ~~the~~ plural different memory devices, and

wherein the relay device selects ~~one~~ a virtual memory area based on the second information, determines whether the selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in plural different memory devices, and if the selected virtual memory area is formed by combining memory areas of different memory devices and if an unused memory area exists in the memory device containing the selected one virtual memory area, performs data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected on virtual memory area to ~~be~~ the unused memory area of the memory device containing the selected one virtual memory area.

14. (currently amended)A computer system according to claim 13, wherein the relay device refers to the second information to perform transfer

of data among the plural memory devices if the memory area of one of the different memory devices other than the memory device containing the selected one virtual memory area has a smaller capacity relative to the capacity of the unused memory area of the memory device containing the selected one virtual memory area.

15. (original) A computer system according to claim 14, wherein the second information is updated based upon the first information.

16. (currently amended)A relay device connecting computers and memory devices with each other, each memory device being separate from the other memory devices, said relay device comprising:

an interface section for making connection with the computers or the memory devices;

a routing control section which performs routing of a packet received from the computers or the memory devices; and

a management section which manages the entire relay device,

wherein the management section holds second information which is created based upon first information on contents of virtual memory areas of the memory ~~device~~ devices set for the computers, said second information being created for each virtual memory area,

wherein said second information of a corresponding virtual memory area indicates whether data stored in the corresponding virtual memory area can be transferred from a memory device containing said virtual memory area to another memory device,

wherein each of the virtual memory areas ~~correspond~~ corresponds to memory areas contained in ~~the respective~~one memory ~~devices~~ device or corresponds to a memory area formed by combining memory areas contained in ~~the~~ plural different memory devices, and

wherein the management section selects ~~one~~ a virtual memory area based on the second information, determines whether the selected virtual memory area is a virtual memory area formed by a memory area that combines memory areas contained in plural different memory devices, and if, the selected virtual memory area is formed by combining memory areas in different ~~plural~~ memory devices and if an unused memory area exits in the memory device containing the selected one virtual memory area, performs control of data transfer of data from a memory area of one of the different memory devices other than the memory device containing the selected ~~one~~ virtual memory area to the unused memory area of the memory device containing the selected ~~one~~ virtual memory area via the routing control section and the interface section.

17. (original) A relay device according to claim 16, wherein the second information has a flag indicating a state of whether or not data transfer is in progress for the respective virtual memory areas, and

when the computers access the virtual memory areas, if the flag of the virtual memory area corresponding to the second information indicates data transfer in progress, the control section judges which of a data transfer source and a data transfer destination should be accessed and dues not interrupt

data access from the computers to the virtual memory areas during data transfer.

18. (original) A relay device according to claim 17, wherein the routing control section directly copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to a memory area of the data transfer destination.